tation and delivered spontaneously after a tedious labor. The child's face was swollen from the mouth to the eyes. Upon examination an exostosis was found behind the symphysis, to the right of the median line, and extending parallel to the ramus of the pubes. This growth had a smooth surface, and hence had not lacerated the face of the child. The pelvis was otherwise normal in contour. The promontory of the sacrum could not be reached by internal examination. The facial paralysis was upon the left side, and disappeared spontaneously in a few weeks after labor.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

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AND

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The Evolution of the Ophthalmoscope.—THEOBALD, of Baltimore (*New York Medical Journal*, June 22, 1901), in an address reviewing the history of the ophthalmoscope which has now reached the fiftieth anniversary since its invention, remarks that the problem which the investigators, with the exception of Cumming, were endeavoring to solve was: Why the pupil appears black ordinarily, while under certain unusual conditions it emits a reddish light. Prevost, of Geneva, about 1810, noticed that the luminosity of the eyes of certain animals which had long been known disappears in a perfectly dark room. Rudolphi further showed that it was necessary to look into the eye in a certain definite direction to perceive the reflex. It had also long been known that in certain pathological conditions, such as intraocular growths and detachments of the retina, the eye emits a faint light. Cumming, 1846, then a student in the London Hospital, showed how a luminous appearance or reflection might be obtained in the normal human eye by examination in a dark room with the patient ten or twelve feet from the light source, while the observer's eye looks as nearly as possible into the observed in a direct line between the light and the eye. He supposed that the reflex which could always be obtained in normal eyes would disappear under pathological conditions, and thus furnish a means of diagnosis. Brücke, in 1847, placed a tube through the flame of a candle, and thus obtained a reflex, besides employing a method similar to that of Cummings; he also related an observation of a medical friend who, wearing concave glasses, obtained a reflex from the pupil of a person standing in front of him when the light reflected from the glasses entered the observed eye. In 1849 Babbage contrived an ophthalmoscope by scraping off a little of the silvering from the back of a plane mirror which he set obliquely in a suitable tube. This instrument more nearly resembled the modern instrument than that of

Helmholtz. Babbage, who seems to have been unfortunate in nearly all of his ventures, failed to have his instrument brought before the profession and properly appreciated. His friend, Wharton Jones, published an account of it in 1854, and thus secured to Babbage the credit due him.

After according to Helmholtz the credit of inventing the parent of all later ophthalmoscopes, the first instrument with which the fundus of the living eye was distinctly seen, and mentioning him as the first to suggest the indirect method, Theobald asserts that what was essential in his ophthalmoscope was not wholly original, and what was original was not only distinctly not essential, but was the outcome of a fortunate misconception on his part. This consisted in the insertion of a concave lens between the glass plates and the eye of the observer. Helmholtz was led to employ the lens, supposing that the observed eye would be accommodated for the virtual reflected source of light, the rays would leave the cornea convergent to that point, and hence would need to be rendered parallel or divergent for the observing eye. Theobald claims that this is not the function the lens actually fulfils, that the observed eye has little inclination to employ its focusing power, but that the lens serves to overcome the involuntary focusing of the observer's eye. Beginners with the ophthalmoscope, as is well known, have trouble in controlling their accommodation when looking at a near object. The difficulties first experienced by Helmholtz were great. His words are: "It was at first so difficult to use that I doubt if I should have persevered unless I had felt that it must succeed; but in eight days I had the great joy of being the first who saw before him the living human retina." Eppens, an instrument-maker of Amsterdam, a few months after Helmholtz's publication, replaced the glass plates used by Helmholtz by a plane mirror with the silvering removed from a small space in the centre. In the meantime Rekoss, a German "mechaniker," added two revolving disks which carried a series of concave lenses. In 1852 Reute suggested a concave mirror in place of the plane mirror of Epnens. (The original papers of Brucke, Cumming, Reute, and Helmholtz, all in German, have been bound together in a small separate volume.) Ophthalmologists as such had taken no part in the scientific observations which led to the invention and improvement of the instrument up to the time of Reute; thereafter they were very active in constructing new models. Mery, nearly one hundred and fifty years before, had observed, as he accidentally held a cat under water, that the vessels of the retina and the color of the fundus could be seen. Upon this hint the so-called orthoscope was now invented.

Edward Jaeger, in 1856, was one of the first to appreciate the method of determining objectively the refraction of the eye by means of the ophthalmoscope. The late Dr. E. G. Loring, of New York, deserves the largest measure of credit for bringing the refraction ophthalmoscope to its present state of perfection. His first description was published in 1869. In 1872 Dr. O. F. Wadsworth, of Boston, suggested the use of a tilting mirror, which was subsequently adopted by Loring in a modified form. The older ophthalmologists were at first somewhat loath to admit the excellencies of the new instrument, but the latter rapidly made its way. It is curious to find certain names in connection with the early history of ophthalmoscopy, such as Mr. Spencer Wells and Dr. Christopher Johnson.

Ocular Complications of Mumps.—PÉCHIN (*Gaz. Heb. de Med. et de Chir.*, 1901, No. 45) calls attention to the ocular complications occasionally observed in mumps, and reports a case of iritis with infiltration of the cornea. A young man, aged twenty-two years, whose hereditary and personal medical history was negative, became affected with a severe attack of mumps (double parotiditis) February 17, 1897, followed March 1st by facial palsy of the right side and involvement of the gustatory sense of the right side of the tongue for its anterior two-thirds. The paralysis had disappeared by March 25th, but the parotid affection continued longer. At the end of April, nine weeks after the outbreak of the original disease, the ocular complications—iritis and keratitis—made their appearance. On May 31st he was first seen by Péchin. There was bilateral iritis with posterior synechia and a slight pericorneal zone. The right cornea was infiltrated in the form of a triangle with its apex above, near the centre; the width of the base at the limbus equalled about a quarter of the corneal circumference. The vision of the right eye was 1/2, the left, 1 badly. The ocular disease was not accompanied by pain, photophobia, or lachrymation, unlike syphilitic or rheumatic iritis. The vision constantly diminished. By June 11th it had become: right, 1/5; left, 1/4. Atropine produced large and regular dilatation on the left side, very irregular on the right. Fundi well seen. On July 28th vision was: right, 1/4; left, 1/3. Bulbar conjunctiva less hyperæmic. On November 12th vision of right eye was 1/2, badly, with muscæ volitantes; fundus visible, nerve very hyperæmic. Left eye vision was 1 on January 10, 1898; vision right was, 1/2 badly; left 1, when treatment was discontinued.

The Micro-organisms of the Healthy and Diseased Conjunctiva, and their Etiological Importance.—SANNA (*Il Policlinico*, 1901, No. 39) arrives at the following conclusions as to the bacteriological findings in the conjunctival sac:

1. The human conjunctiva, healthy or diseased, always contains a varied bacterial population.
2. The pathogenic species are about the same in the animals ordinarily used in experiments (rabbits, dogs).
3. The etiological importance of these bacteria depends upon the physiological conditions of the conjunctiva at a given time.
4. Those bacteria which are found only in the human subject, like the gonococcus, the diplobacillus, and Weeks' bacillus, are an exception to rule 3.
5. The pseudodiphtheritic bacilli, which are ordinarily found in the human conjunctiva, have no pathogenic power and are unable to acquire such.
6. Fränkel's pneumococcus inoculated into the normal human conjunctiva from anërobic cultures always remains innocuous.
7. Cauterization of the conjunctiva of dogs with phenic acid and irritation by croton oil always excite an inflammation with bacterial accompaniment about like that found in other inflammations of the conjunctiva in man.
8. Inoculations of the healthy conjunctiva of dogs with the secretion derived from the conjunctivitis of cauterization and irritation with the substances above mentioned, have never been found to cause inflammation.
9. The micro-organisms found in such conjunctivitis are destroyed in large part by the epithelium and other phagocytic elements of the conjunctiva.